

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Okamoto et al.

Serial No.: 10/568,616

Art Unit: 1796

Filed : February 16, 2006

Examiner : OJURONGBE, OLATUNDE S

Title : CURING COMPOSITION WITH IMPROVED HEAT RESISTANCE

DECLARATION UNDER RULE 132

Honorable Commissioner of Patents and Trademarks,
Alexandria, VA 22313-1450

Sir:

I, Toshihiko OKAMOTO, hereby declare and state:
THAT I am a citizen of Japan;

THAT March 1994, I was graduated from the Graduate
school of OSAKA University, and received a Master Degree
in Engineering;

THAT I have been employed by Kaneka Corporation
since April 1994, and now I am a researcher of modified
silicone sealants;

I am an inventor of the invention disclosed in the
instant application;

I have read the Office Action mailed and the
references cited therein and am familiar with the subject
matter thereof;

I respectfully submit herewith my exact report
thereon;

In order to determine suitable amount of the
component (B), curable compositions containing various
amount of the component (B) were prepared, and curability

of the composition and heat resistance of cured products obtained therefrom were evaluated in the same manner as Examples in the instant application.

Alternatively, in order to demonstrate the advantageous effect of the curable composition that contains another component (B) than neodecanoic acid or a metal carboxylate thereof, pivalic acid was used as the component (B). Then, curability of the curable composition containing pivalic acid and heat resistance of cured products obtained therefrom were evaluated in the same manner as Examples in the instant application.

[Experiment]

In the same manner as Table 2 (Example 5 to 7 and Comparative example 3) of the instant specification, curability of curable compositions (tack-free time: TFT), M50 value before heat curing (50% tensile stress), retention rate of M50 value after heat curing of 90°C x 14 days as listed in the below table. The results are illustrated in the Table below.

In the table below, the organic polymer (A-1) as the component (A) refers to an organic polymer obtained by the method of Synthesis Example 1 in the instant application.

Table

Composition (Parts by weight)		Experiment No.								
Component (A)		1	2	3	4	5	6	7	8	9
Filler	Hakusaka CCR	100	100	100	100	100	100	100	100	100
Titanium oxide	Tiopak R-820	120	120	120	120	120	120	120	120	120
Plasticizer	DIDP	20	20	20	20	20	20	20	20	20
Izotropic agent	Disparlon #6500	55	55	55	55	55	55	55	55	55
Photostabilizer	Sandol LS-7/70	2	2	2	2	2	2	2	2	2
UV absorber	Tinuvin 327	1	1	1	1	1	1	1	1	1
Antioxidant	Irganox 1010	1	1	1	1	1	1	1	1	1
Dehydrating agent	A-171	1	1	1	1	1	1	1	1	1
Adhesion-imparting agent	A-1120	2	2	2	2	2	2	2	2	2
		3	3	3	3	3	3	3	3	3
Tin carboxylate	Neostann U-50		1.5	5	10					
Carboxylic acid	Versatic 10					1.5	5	10		
	Pivalic acid ⁽³⁾								1.5	5
Amine	Farnin 200		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Cureability	Tack-free time		65	22	18	40	13	12	25	10
M50 value before heat curing	min MPa		0.47	0.43	0.39	0.44	0.34	0.27	0.4	0.36
Retention rate of M50 value after heat curing of 90°C x 14 days	%		85	95	105	85	100	105	89	98
									98	90

(1) $(CH_3)_3CCOOH$

[Results of the Experiments]

As listed as Experiment No. 1 to 9 in the Table, Neostann U-50 (tin neodecanoate <Experiment No.1 to 3>), Versatic 10 (neodecanoic acid <Experiment No.4 to 6>), pivalic acid <Experiment No.7 to 9>, which had a quaternary carbon atom (alpha carbon) in the vicinity of a carbonyl carbon, provided cured products with heat resistance and rapid curing property in a wide range of added amount even though non-organic tin catalysts were involved.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed this 17th day of February, 2010

Toshihiko Okamoto

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